

Capacity Development and Multi-Tiered Systems of Support: Guiding Principles*

George Sugai, Brandi Simonsen, Jennifer Freeman and Tamika La Salle
University of Connecticut, Storrs, CT, USA

Implementation of multi-tiered systems of support is occurring within and across a number of countries with an increased recent focus on the development of local system capacity to maintain high levels of practice implementation fidelity. The purpose of this paper is to describe the importance of local capacity development in the high fidelity and sustained implementation of empirically supported practices within a multi-tiered system of support. After we describe the rationale for, and descriptions of, capacity development and multi-tiered systems of support, we (a) present a framework for the development of implementation capacity, (b) emphasise guiding concepts and principles, and (c) use positive behavioural interventions and supports as an example of a capacity development framework. We conclude with implications and recommendations.

Keywords: evidence-based practices, implementation capacity development, multi-tiered systems of support, positive behavioural interventions and supports, implementation fidelity and sustainability, applied behaviour analysis

Education systems around the world are engaged in valiant efforts to address significant issues affecting classrooms and schools, including school violence, illiteracy, reactive and negative school climates, school dropout, mental health, disproportionality and inequitable access to services and supports (Jimerson, Nickerson, Mayer, & Furlong, 2012; Kauffman & Landrum, 2013; Walker et al., 1996; Walker, Ramsey, & Gresham, 2004). Ironically, many evidence-based interventions and practices have been identified to tackle these kinds of challenges; however, their adoption, impact, durability, and scaled or systems-wide implementation have not been widely demonstrated (Fixsen, Blase, Horner, & Sugai, 2010; Fixsen, Blase, Metz, & Van Dyke, 2013; Fixsen, Naoom, Blase, Friedman, & Wallace, 2005; Wandersman, Alia, Cook, Hsu, & Ramaswamy, 2016; Wandersman et al., 2008). Instead, implementation fidelity and sustainability seem to be lessened by (a) professional development that is short in duration, cursory in nature, and led by outside experts; (b) misalignment with actual student, classroom, and school need; (c) competing initiatives and efforts that have overlapping outcome goals but nonoverlapping implementation plans; (d) approaches without well-documented effectiveness and cultural or contextual relevance; (e) inattentiveness to basic teaching and learning tenets; (f) insufficiently

Correspondence: George Sugai, Center for Behavioral Education & Research, Neag School of Education, University of Connecticut, Storrs, CT, USA. Email: george.sugai@uconn.edu

*This manuscript was accepted under the Editorship of Michael Arthur-Kelly.

prioritised and supported leadership policy and resources; or (g) some combination of these factors (Nese et al., in press; Pinkelman, McIntosh, Rasplca, Berg, & Strickland-Cohen, 2015; Strickland-Cohen, McIntosh, & Horner, 2014; Turri et al., in press).

Fortunately, an existing and rapidly growing literature base is available to guide education systems toward improved practice adoption, alignment, and integration; long-term implementation fidelity; and meaningful improvement in the academic and behavioural outcomes for all children and youth. However, to achieve these systemic results, school improvement stakeholders must ‘work smarter’ (i.e., more effectively, efficiently, and relevantly) by adopting a defensible and relevant theoretical perspective, providing and engaging in embedded professional development activities that are informed by adult teaching and learning principles, and investing in the establishment of expert, durable, and local content and implementation capacity at the leadership level.

The purpose of this paper was to describe the importance of capacity development (CD) in the high fidelity and sustained implementation of empirically supported practices within a multi-tiered system of support (MTSS). After describing the rationale for and descriptions of CD, prevention and behavioural sciences, and MTSS, we present a framework for the development of local implementation capacity based on basic teaching and learning principles, system implementation tenets, and shared and distributed leadership precepts. Throughout these sections, we used positive behavioural interventions and supports (PBIS) as an example of a CD framework.

Why Focus on CD?

Although many countries, states, and local school systems have established prohibition of reactive and ineffective disciplinary practices (e.g., corporal punishment, seclusion), in some countries around the world, the academic achievement and progress of children and youth are negatively affected by significant social and political issues. Classroom and school climates are characterised as negative and unsafe because of bullying and violent and antisocial behaviour (Gage, Larson, Sugai, & Chafouleas, 2016; Sugai, Watanabe, & Shimamune, 2014; Walker et al., 2004). Ineffective reactive management strategies (e.g., removal from class, reprimands and public humiliation, in and out of school suspension, corporal punishment) have become common disciplinary practices because of their short-term seemingly positive effects, despite their actual negative long-term academic and behavioural costs. Students of colour who are from poor and disadvantaged families are overly represented in reactive disciplinary systems and least likely to get equitable access to proactive resources (De Valenzuela, Copeland, Qi, & Park, 2006; Fenning & Rose, 2007; Gregory & Weinstein, 2008; Skiba, Poloni-Staudinger, Gallini, Simmons, & Feggins-Azziz, 2006). Although no more frequent than in previous years, episodes of school violence are more deadly and intense, and student, educator, and family member perceptions of school safety are at low levels (Benbenishty & Astor, 2005; Dwyer, Osher, & Warger, 1998; Furlong & Morrison, 2000; Furlong, Morrison, Cornell, & Skiba, 2004). In addition, concerns about school leaving (dropping out), gang involvement, unemployment, and substance use, for example, have increased over recent years (Kauffman & Landrum, 2013; Walker et al., 2004).

In the United States (US), for example, federal (e.g., U.S. Departments of Education, Health and Human Services, and Justice) and state education entities have responded with policies and legislative acts that prioritise positive school climate, school mental health, character education, and social skills instruction. PBIS is an example of a federal investment and systemic approach to address the above concerns by promoting the organisation and

implementation of evidence-based practices within a multi-tiered prevention framework. Rather than disseminating through traditional professional development approaches that rely on external experts to train school staff members on interventions and practices, the PBIS framework focuses on developing and improving the implementation capacity of school and district personnel and organisational units (Blase, Fixsen, Sims, & Ward, 2015; OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015a).

What is PBIS?

PBIS was introduced in the 1990s through an investment by the Office of Special Education Programs, U.S. Department of Education, to improve the adoption and implementation of evidence-based behavioural practices (<http://www.pbis.org>). Technical assistance is focused on establishing a continuum of evidence-based practices for all students, but especially students with disabilities and behaviour disorders (Safran & Oswald, 2003; Sugai & Horner, 1999; Sugai et al., 2000). Over the past 10 years, the database in support of PBIS practices and systems has grown (Bradshaw, Koth, Bevans, Ialong, & Leaf, 2008; Bradshaw, Koth, Thornton, & Leaf, 2009; Bradshaw, Mitchell, & Leaf, 2010; Bradshaw, Reinke, Brown, Bevans, & Leaf, 2008; Bradshaw, Waasdorp, & Leaf, 2012; Childs, Kincaid, George, & Gage, 2016; Horner, Sugai, & Anderson, 2010; Horner et al., 2009). In addition, a number of district- and state-level examples have been described in the published literature (e.g., Sadler, 2000; Sadler & Sugai, 2009; Simonsen et al., 2012; Spaulding, Horner, May, & Vincent, 2008). In the following sections, we describe the main features that characterise PBIS (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015a, 2015b; Sugai & Horner, 2009a, 2009b).

Foundations in behavioural science

PBIS is based on behavioural science principles and tenets, in particular, applied behaviour analysis (ABA; Cooper, Heron, & Heward, 2007; Gresham, 2004; Nelson et al., 2009; Wolery, Bailey, & Sugai, 1988). Although physiology and cognitive abilities are important considerations, the emphasis is on the individual's behaviour and learning history, which is shaped and affected by features and actions of the environments in which behaviours are learned, occasioned or triggered, and reinforced (Skinner, 1953). As such, what children, youth, and adults say and do is influenced by their prior learning experiences and the characteristics of the classroom and nonclassroom settings (Vargas, 1977, 2009). Developing an understanding of learning history and behaviour–environment functional relationships guides implementation decisions.

Prevention focus

PBIS emphasises a prevention science approach by giving priority to decisions and actions that prevent the development of new problem behaviour (incidence) and reduce the frequency, occurrence, intensity, and/or complexity of existing problem behaviour (prevalence; Biglan, 1995, 2015; Embry, 2004; Mayer, 1995). As such, the focus is on (a) teaching expected and appropriate social skills that represent and support academic and social success; (b) adding antecedent and consequence changes that prompt and maintain, respectively, desired behaviour; and (c) removing antecedent and consequence changes that prompt and maintain, respectively, undesirable behaviour.

Multi-tiered framework

The PBIS framework is based on a multi-tiered prevention logic that is derived from the public health and disease control approach and generally emphasises implementing the most effective prevention practices for all members of a particular community or population, and providing additional, more specialised supports for individuals whose behaviours are already high risk or have been proven to be unresponsive to more universal interventions (Biglan, 1995; Colvin, Kame'enui, & Sugai, 1993; Lewis & Sugai, 1999; McIntosh & Goodman, 2016; Walker et al., 1996). Generally, a three-tiered logic is emphasised in education contexts. Tier 1 practices (a) support all students and staff members across all classroom and nonclassroom settings and (b) focus on directly teaching and positively reinforcing desired or expected social skills and behaviours and their setting-specific variations. Tier 2 practices are small-group oriented for students whose behaviours are less responsive to Tier 1 practices and require more frequent, intensive, and targeted intervention supports. Tier 3 practices are the most individualised and specialised for students whose behaviours are unresponsive to Tiers 1 and 2 and have the greatest risk of academic and/or behavioural failure.

Critical implementation elements

PBIS operates through the integration of four implementation elements. First, all decisions are focused on specification and achievement of important academic achievement and social behaviour *outcomes* of all students. Second, *data* are used to inform decisions about student goals, practice selection, and implementation fidelity (Gresham, 1989; Hagermoser Sanetti & Kratochwill, 2014). Third, the selection of the best evidence-based *practices* is based on student data and alignment with student benefit. Finally, *systems* are established to ensure that data-based decisions, appropriate goals, and evidence-based practices are selected and implemented with fidelity. School and district leadership teams make decisions regarding data, student outcomes, evidence-based practices, and implementation systems by giving careful attention to learning histories and local contextual and cultural norms and characteristics of students and family and staff members (e.g., language, ethnicity, neighborhood; Sugai, O'Keeffe, & Fallon, 2012). The goal is to establish local implementation capacity for sustaining and generalising the use of all four elements.

Focus on building local capacity

Traditional efforts to change and improve classroom and school practices tend to be 'train-and-hope' events that are episodic (e.g., 'PD day'), acquisition focused (e.g., 'here's the manual and what it looks like'), teacher implemented (e.g., 'give it a try'), and inadequately supported over time (e.g., 'let us know how it goes'; Latham, 1992). In contrast, implementation of the PBIS framework (outcomes, data, practices) is focused on establishing effective, efficient, and relevant teaching and learning environments by embedding professional development structures, supports, and activities to maximise local and durable implementation capacity.

What is Implementation CD?

MTSS, like PBIS, focuses on establishing local content expertise and long-term implementation competence so that educators have improved opportunities to select and implement evidence-based practices with high fidelity, sustain and adapt their implementation over time and contexts, and scale or extend their implementation with fidelity to other contexts

and settings (i.e., classrooms, schools, districts, regions; Durlak & DuPre, 2008; McIntosh & Goodman, 2016). As such, CD is described generally as the ‘process through which individuals, organizations, and societies obtain, strengthen and maintain the capabilities to set and achieve their own development objectives over time’ (United Nations Development Programme, 2009, p. 4).

Although the empirical literature is not well developed (Wandersman, Chien, & Katz, 2012), the conceptual consideration of CD exists. For example, Wandersman and his colleagues have developed a useful heuristic (Scaccia et al., 2015; Wandersman et al., 2008) within which ‘empowerment evaluation’ and ‘getting to outcomes’ are proposed so organisations increase their capacities to achieve important outcomes through the efficient implementation of evidence-based interventions. In particular, Scaccia et al. (2015) emphasise ‘(a) motivation to implement an innovation, (b) general capacities of an organization, and (c) innovation-specific capacities needed for a particular innovation’ (p. 484). Tools, training, technical assistance, and quality assurance and improvement are suggested as four key components within an ‘Interactive Systems Framework for Dissemination and Implementation’ (Wandersman et al., 2008, p. 171).

We extend the Wandersman et al. (2008) heuristic within the PBIS context to suggest that CD is the establishment of competent and sustainable school, district, and state organisational systems such that academic and behaviour practice implementation is (a) culturally responsive, high fidelity, and sustained over time; (b) continuously adapted and regenerated based on decisions that are data-based; (c) locally coordinated and professionally developed; and (d) formally authorised and institutionalised (OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015a; Shannon, Daly, Malatchi, Kvarfordt, & Yoder, 2001). In addition, three important sets of conceptual principles guide development of implementation competence and capacity: phases of learning, implementation drivers and phases, and MTSS.

How do phases of learning relate to development of implementation capacity?

Teaching academic skills and social behaviours to students occurs in phases — each of which guides how success and progress are assessed and what kind of instruction is needed (Colvin et al., 1993; Colvin & Sugai, 1988; Haring, Liberty, & White, 1980; White & Haring, 1980). The same logic applies to professional development and adult learning. During the acquisition phase, teacher-led direct instruction (e.g., describe, tell, model, practice, regular corrective and positive feedback) and accurate and complete responding are emphasised (Sugai & Tindal, 1993). Following acquisition, instruction shifts to fluency building, by providing guided practice and feedback regarding consistency and rate of responding. After accurate and fluent responding are documented, durable or sustained responding is achieved in the maintenance phase by systematically removing instructional prompts and assistance and shifting feedback and consequence supports to naturally available contingencies. The generalisation and adaptation phase involves teaching with new and varied examples so student and adult learners will learn to use their acquired skills in contexts and conditions that were not included in initial instruction and where instructional supports are not available.

When this teaching and learning phase logic is applied to adult learners, professional development becomes more than, for example, book discussions, motivational speakers, 1-hour webinars, or one-time half-day workshops. Whereas traditional professional development involves episodic and brief exposure to a new teaching practice, a capacity-focused approach provides professional development supports that target accurate, fluent,

durable, and generalisable practice use. This shift requires that professional development be embedded within existing organisational structures and regularly occurring teaching routines and activities. As such, development of local implementation capacity is centred around supporting adult learning that is guided by phase of learning.

How does implementation phase relate to development of implementation capacity?

Implementation phase is an important consideration in establishing implementation capacity and integrates into the learning phase logic. Researchers at the National Implementation Research Network propose that practice implementation occurs in five phases (<http://nirn.fpg.unc.edu/>; Blase & Fixsen, 2013; Bradshaw, Debnam, Koth, & Leaf, 2009; Fisher, Shortell, & Savitz, 2016; Fixsen et al., 2005; Metz & Bartley, 2012). During the exploration and readiness phase, implementers are introduced to a practice by highlighting and operationalising the need, proposing a viable practice to achieve the need, and securing commitments and readiness for implementation (Dymnicki, Wandersman, Osher, Grigorescu, & Huang, 2014; Scaccia et al., 2015). This introduction is often presented by practice developers or external professional trainers. The next phase, initial implementation, involves organising resources, developing schedules, preparing personnel, and engaging in initial practice implementation. During this phase, extra supports (e.g., grants, supplemental personnel) are sometimes utilised to ensure adoption and implementation success. Self-sustaining continuous improvement with local resources is the long-term target.

If initial efforts are successful and adjustments are made to accommodate the local implementation conditions, implementers commit to full use of a practice across the organisation (e.g., > 80% of personnel). During this phase, coaching and leadership coordination are frequent and direct. If the goal of full implementation with fidelity is achieved, implementation efforts focus on sustaining or maintaining implementation by shifting from external and extra support to more local resources and supports. In addition, resource efficiency adaptations are made so that sustainability and scaling can occur with existing supports (CD).

Finally, if full implementation provides a convincing and cost-effective demonstration of practice use and meaningful student outcomes, planning and support are established to enable implementation expansion (i.e., scaling) across other similar organisational units (e.g., classrooms, grade levels, schools, districts). Again, the goal is to reduce dependence on external, nonsustainable resources (e.g., funding, personnel, time).

How does MTSS relate to development of implementation capacity?

To increase the efficiency and relevance of professional development and capacity enhancement efforts, an MTSS logic approach can be useful (McIntosh & Goodman, 2016; Sugai & Horner, 2009b). As previously described, MTSS is characterised by the development of a tiered system of practices and supports that are delivered based on student behaviour responsiveness to a given intervention. If responsiveness is low or if the student has demonstrated high risk, more intensive and specialised supports are provided.

A similar responsiveness-to-professional development logic is applied to CD. If an educator or group of educators (e.g., grade level, school faculty) is unresponsive to efforts to increase practice use and fidelity through general professional development, more intensive and specialised supports may be indicated (Myers, Simonsen, & Sugai, 2011; Simonsen et al., 2014). For example, a district team may support initial implementation of a practice within a school, and discover that 75% of the school staff are 'onboard' with

implementation using a school-based team (Tier 1). Before moving to full implementation, additional professional development may be needed for the other 25% (Tier 2), and a few staff members may require more direct and individualised encouragement from the school administrator (Tier 3).

Summary

By integrating the logic of teaching and learning phases, implementation phases, and MTSS, professional development and the establishment and operation of implementation capacity can be more deliberate, prescriptive, sustainable, and self-improving. Again, the objective is to give local school organisational units (e.g., school, district) the capacity to provide meaningful and formative professional development, achieve durable implementation fidelity, reduce their dependence on external unsustainable supports, make contextually relevant implementation decisions, and extend or scale their implementation across their organisational unit. In [Table 1](#), implementation and learning phases, expected outcomes, and CD focus are described.

How Is Local Implementation Capacity Developed and Maintained?

Local implementation capacity exists when (a) reliance on external professional development and technical assistance supports are minimally required to maintain full and scaled implementation of an evidence-based practice; (b) continuous improvement decisions are routinely made about implementation of existing efforts; and (c) existing resources and leadership structures can be directed toward new, high priority needs.

Because individual schools typically do not have the resources for major shifts in implementation efforts, CD is most often focused at the district or region where groups of schools administratively pool their resources. However, this way of doing business requires a high level of implementation and organisational efficiency. Using PBIS as an example, development of district-level implementation capacity considers four main drivers (Algozzine et al., 2010; Duda et al., 2013; OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports, 2015a): (a) organisational agreement that considers priority, policy, duration, and authority; (b) administrative team leadership that emphasises stakeholder participation, data-based decision-making, action-based implementation planning, and practice alignment and integration; (c) tiered professional development and evaluation that is embedded within daily routines, continuous, and high-fidelity implementation; and (d) exemplary practice implementation that considers documentation, replicable data-based descriptions, and high visibility. These drivers are represented in the PBIS Implementation Blueprint shown in [Figure 1](#).

Organisational agreement

Establishing effective and durable implementation capacity requires administrative leadership agreement and commitment. *High priority* must be established for the identified need, selected practice for addressing that need, and supports for implementing the practice. Across the district, developing and sustaining implementation capacity for a specified practice should be among the top three to five annual priorities. This level of commitment is expressed by formalising *policy* and procedural guidelines, securing school and community support from *stakeholders*, maintaining *high visibility* of implementation and outcomes, ensuring adequate recurring (3–5 years) *funding*, and engaging in supportive

TABLE 1**Implementation and Learning Phases, Expected Outcomes, and Capacity Development Focus**

Implementation (learning) phase	Expected outcome	Capacity development focus
Exploration and readiness (acquisition)	Operational specification of need and identification and alignment of evidence-based practice and systems with local need	<ul style="list-style-type: none"> • Establishment of need priority, agreement, alignment, and integration by local leadership units (school, district, state) • Drafting of procedural implementation policy for practice • Development and/or adaptation of decision system to track learner progress and implementation fidelity
Initial implementation (acquisition and fluency)	Predictable, accurate, and consistent use of practice and systems under controlled conditions and with committed implementers	<ul style="list-style-type: none"> • Identification and alignment of local coaching and leadership resources to prompt and reinforce practice use • Integration of training curriculum and opportunities into local professional development plan • Continuous progress monitoring of learner responsiveness to practice and implementation fidelity • Provision of Tier 2/3 supports for slow practice adopters
Full implementation (fluency)	Predictable, accurate, and consistent use of practice and systems across people and settings of whole organisation with external implementation coaching and performance feedback	<ul style="list-style-type: none"> • Shifting from external to internal coaching and training supports • Formalisation of local resources to maintain fidelity implementation • Establishment of continuous progress monitoring of learner responsiveness to practice and implementation fidelity into regular decision-making routines and schedules • Regular meeting of local leadership team to monitor learner progress, implementation fidelity, and percentage of high-fidelity implementers • Development of descriptions, data displays, and implementation history to serve as guiding example for new implementers • Provision of Tier 2/3 supports for slow practice adopters
Sustained implementation (maintenance)	Predictable, accurate, and consistent use of practice and systems across people and settings of whole organisation with local internal supports and performance feedback	<ul style="list-style-type: none"> • Reorganisation and orientation of implementation resources so implementation fidelity and progress maintained, and attention can be shifted to implementation improvement and/or new priorities • Refinement of procedural policy to support sustained and scaled practice implementation • Regular meeting of local leadership team to review progress data and need for new or additional professional development

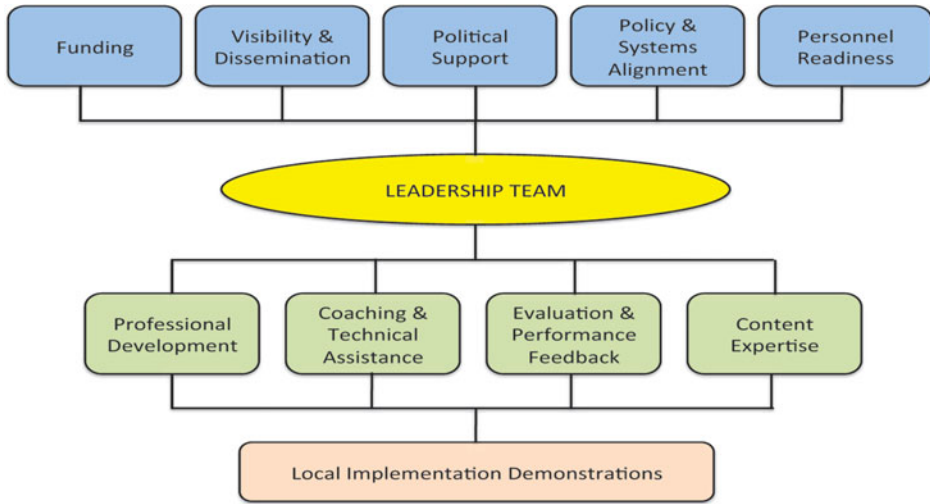
TABLE 1

Continued

Implementation (learning) phase	Expected outcome	Capacity development focus
Scaled implementation (generalisation and adaptation)	Predictable, accurate, and consistent use of practice and systems across people and settings of new and similar organisational units with local supports and performance feedback	<ul style="list-style-type: none"> • Development of descriptions, data displays, and implementation history to serve as guiding example for new implementers • Development of local resources to support professional development, evaluation, and practice implementation in schools within the organisational unit • Establishment of hiring of, and professional development for, highly competent, long-term (5+ years) instructional and behavioural leadership at school and district implementation levels • Provision of Tier 2/3 supports for slow practice adopters • Expansion plan developed by local leadership team that emphasises the following: <ul style="list-style-type: none"> • Maintenance and highlighting of implementation examples • Utilisation of local coaching and professional development resources • Formalising of practice implementation policy across organisational unit • Formalising implementation policy for hiring and professional development of competent leadership, coaching, training, and evaluation capacity • Frequent and regular decision-making based on learner progress and implementation fidelity data • Reorganisation of implementation resources so implementation fidelity and progress maintained, and attention can be shifted to implementation improvement and/or new priorities • Provision of Tier 2/3 supports for slow practice adopters

personnel hiring. The final and most important agreement is the designated authority to lead and make decisions related to priority, policy, stakeholders, hiring, and funding. At the school level, leadership authority must be expressed by the principal or designee (e.g., assistant principal). At the district level, superintendents and school board members or trustees must give decision-making authority to its lead individual of the implementation leadership team.

District and school professional development capacity should establish and maintain local content or practice expertise to back school implementation and reduce dependence

**FIGURE 1**

PBIS Implementation Blueprint. **Figure 1** adapted with permission from the OSEP Technical Assistance Center on Positive Behavioral Interventions and Support, University of Oregon, Eugene (<http://www.pbis.org>).

on external supports. This practice expertise then would be the foundation for staff member training, implementation coaching, and progress evaluation. Although schoolwide training events may be necessary to maintain consistency and establish agreements, most training and coaching should be coordinated by school-level implementation teams and embedded within typical school routines and structures (e.g., grade level, department, and all faculty meetings; regular assemblies and student activities).

Administrative team leadership

An effective leadership team must be established. Effectiveness is linked to having decision-making authority, stakeholder representation, and implementation expertise. Decision-making authority is particularly important to establish and maintain implementation priority and durability, and is established when a given need or priority is explicitly expressed in district-level goals and when high-level administrators (e.g., superintendents, school board members) endorse the effort through highly visible disseminations, development of policy, and allocation and alignment of resources.

The work of this team is guided by an annual action plan based on implementation phases and focused on sustainable implementation capacity 3–5 years into the future. Regular reporting to district leaders on learner progress, implementation visibility, and implementation exemplars also would be action plan activities. In particular, an emphasis on implementation fidelity using the MTSS logic to deliver and distribute professional development and coaching supports.

A primary function of the leadership team is to select, align, and integrate evidence-based practices within an MTSS framework using data on school-level implementation fidelity and continuous student progress monitoring. This function would necessitate collaborative implementation across leadership teams, projects and initiatives, and prioritisation of school and district needs. In general, this process consists of five main steps: specify, prioritise, align, integrate, and implement. Although a linear sequence is

TABLE 2
Leadership Implementation Process Steps

Implementation step	Description
1. Specify and prioritise need	<ul style="list-style-type: none"> • Use local data to identify and characterise current and new needs • Prioritise needs based on severity, intensity, and frequency • Integrate or combine needs that are related with respect to problem behaviour or setting • Select top two or three needs with which to initiate implementation process
2. Select, align, and integrate evidence-based practices	<ul style="list-style-type: none"> • Select evidence-based practices that have been proven to address identified top needs, have cultural relevance, and can be implemented with local supports • Align and integrate implementation of practices that have common elements (e.g., data sources and methods, intervention components, implementation sites) • Consider practice adaptations based on local context, cultural, language, etc.
3. Develop data system to monitor impact progress and implementation fidelity	<ul style="list-style-type: none"> • Select data indicators that represent and align with needs and are measurable • Develop decision-making process and schedule for <ul style="list-style-type: none"> ◦ regular universal screening for students who could benefit from practice ◦ continuous progress monitoring of student responsiveness to practice implementation ◦ regular evaluation of practice implementation fidelity
4. Establish capacity for sustainable and fidelity implementation and continuous improvement	<ul style="list-style-type: none"> • Ensure active participation and modelling by lead administrator(s) • Establish leadership team to develop and coordinate implementation plan • Develop 3–5 year implementation plan that ensures (a) priority, policy, commitment, resources, decision-making authority, leadership teaming, and personnel; (b) decreased reliance on external unsustainable supports; and (c) increased internal or local capacity for high fidelity and durable practice implementation • Develop process and schedule for data-based decision-making with respect to universal screening, progress monitoring, and implementation fidelity • Develop process for continuous, culturally relevant, embedded, and multi-year professional development, including coaching

suggested in Table 2, the process is a reiterative logic, meaning that it is cyclic, overlapping, continuous, and dynamic based on data-documented needs and priorities.

Implementation Example: PBIS

In the 1990s, the reauthorisation of the Individuals with Disabilities Education Act provided for the establishment of a Technical Assistance Center on Positive Behavioral Interventions and Supports (<http://www.pbis.org>; Horner & Sugai, 2015). The Center's purpose was to collect and disseminate evidence-based behavioural practices for students with behavioural challenges, especially students with disabilities. Rather than adopting a more traditional technical assistance approach that focused on collecting and generally disseminating a wide range of behavioural practices to educators, an implementation blueprint

and logic were developed having the following key foundational features (Horner & Sugai, 2015; Sugai, in press): (a) multi-tiered prevention framework (Biglan, 1995; Colvin et al., 1993; Sugai & Horner, 2009a; Walker et al., 1996), (b) positive behaviour supports principles (Carr et al., 2002; Sugai et al., 2000), and (c) applied behaviour analysis (Cooper et al., 2007).

This approach resulted in the development of a multi-layered implementation and technical assistance network of PBIS practices and systems where local CD is emphasised at all tier levels. At the national level, an annual PBIS Leadership Forum is conducted each fall to introduce newcomers to PBIS features, practices, and systems. Forum sessions are presented by school, district, state, and national presenters who are exemplars of content and implementation expertise for new and veteran PBIS implementers. More importantly, forum activities are linked to a network of PBIS state coordinators and leadership teams where follow-up and ongoing implementation supports, school and district exemplars, and training and coaching opportunities and resources are indicated.

The Center maintains a website (<http://www.pbis.org>) that organises practice and system content around a tiered logic and emphasises data-based decision-making so that needs are aligned with evidence-based practices and implementation resources and capacity (Flay et al., 2005). Implementation, professional development, and evaluation blueprints and self-assessments are provided to emphasise implementation fidelity and local CD. To strengthen the importance of implementation within and across academic and social settings, practices and systems are considered within four contexts: (a) classroom, where academic instruction and social behaviour support interact; (b) nonclassroom (e.g., hallways, cafeterias, assemblies, sporting events), where self-managed and interpersonal behaviours are emphasised; (c) family, where cultural factors are acquired; and (d) community, where external social influences come to bear. The three-tiered logic is applied within and across each of these contexts.

At the district and regional levels, leadership team structures and procedures are in place to support school team implementation. These supports include, for example, professional development (training and coaching), local exemplars, policy development, initiative alignment, funding and resource supports, data-based decision-making, long-term action planning, and content and practice expertise. Rather than emphasising the promotion of any specific published program, curriculum, or intervention, the Center highlights their core practice and system elements or features to reinforce the importance of selection, prioritisation, alignment, and integration in the context of progress monitoring and implementation fidelity.

At the school level, school administrators and leadership implementation teams establish systems capacity to sustain implementation of school-wide PBIS practices, especially in classroom and nonclassroom contexts. Whereas district and regional level implementations become *system* implementation exemplars, school-level implementations serve as *practice* implementation exemplars.

Although peer-reviewed research publications are important in documenting implementation CD efforts, the Center gives equal attention to tools and procedural guides that encourage fidelity implementation and local implementation capacity. These practices and systems supports include, for example, action planning self-assessments, procedural implementation blueprints, professional development and evaluation technical assistance briefs, and practice workbooks and examples. More specific examples and supports are provided through regional networks in the US (e.g., Northwest, mid-Atlantic, Northeast, Midwest) where local trainers, coaches, and examples are highlighted.

Another important aspect of the sustainability and scaling of PBIS is its spread outside the US (McIntosh, Kim, Mercer, Strickland-Cohen, & Horner, 2015). Because its primary funding is from US tax dollars, the PBIS Center limits technical assistance activities to the 50 states and US territories. However, the International Association for Positive Behaviour Supports (APBS; <http://www.apbs.org>) functions as a professional organisation for all individuals and groups who are interested in positive behaviour supports (including PBIS) and represents community agencies, early childhood, families, higher education, schools and districts, and statewide leadership (<http://www.apbs.org/about-apbs.html>). Like the PBIS Center, APBS provides an annual networking conference, regular webinars, network opportunities, and research and practice resources that are extended internationally (e.g., Africa, Asia, Australia, Caribbean, Europe, New Zealand, North and South America) with emphasis on the same core principles (e.g., behavioural sciences, prevention, tiered systems of support, implementation CD, leadership; e.g., Greflund, McIntosh, Mercer, & May, 2014; Jimerson et al., 2012; Sørli & Ogden, 2015). Over the past 5 years, an important body of PBIS sustainability implementation work has been conducted and published by Kent McIntosh and colleagues (McIntosh et al., 2015; McIntosh et al., 2016; McIntosh et al., 2013; McIntosh, Mercer, Nese, & Ghemraoui, *in press*; McIntosh, Mercer, Nese, Strickland-Cohen, & Hoselton, *in press*; McIntosh, Predy, Upreti, Hume, Turri, & Mathews, 2014; McIntosh & Turri, 2014; Meng, McIntosh, Claassen, & Hoselton, 2016; Nese et al., *in press*; Pinkelman et al., 2015).

At the international level, PBIS implementation capacity development also has been demonstrated. For example, the New Zealand Ministry of Education has implemented PBIS with support through a national initiative called 'Positive Behaviour for Learning' (<http://pb4l.tki.org.nz/PB4L-School-Wide>). A unique feature of this implementation is the systematic and deliberate integration of the values, customs, and language of the Maori culture. Similar nationally supported efforts include the Caribbean countries (e.g., Cayman Islands, Jamaica, U.S. Virgin Islands, Bermuda, Puerto Rico), Australia (e.g., New South Wales, Tasmania, Victoria, Queensland), Europe (e.g., United Kingdom, Wales), Scandinavian countries (e.g., Norway, the Netherlands, Denmark), and Middle East (e.g., Qatar, Saudi Arabia, Turkey).

Concluding Comments

Given the variability (e.g., size, culture, location) that exists in individual classrooms, grade levels, schools, districts, regions, states, and countries, recommending a single approach to systemic practice implementation is not possible. However, to maximise student benefit, implementation efforts must be effective, efficient, relevant, sustainable, and scalable. We developed this paper as a means of focusing on the importance of CD in the high fidelity and sustained implementation of empirically supported practices within an MTSS. In addition, rather than focusing on interventions and practices, we emphasised foundational tenets from the behavioural and prevention sciences, basic teaching and learning principles, and practice implementation.

Changing the character and operation of classrooms, schools, and districts includes motivating implementers and change agents, disseminating content knowledge, and distributing materials and resources; however, they are insufficient in achieving implementation that is high fidelity, sustainable, scalable, and continuously regenerated over time. Although we acknowledge that some level of external technical assistance and support may be required, we suggest that greater attention must be directed toward establishing local, high-quality, efficient, and relevant implementation capacity.

As a starting point, we used a definition of CD developed by the United Nations Development Programme (2009) that emphasised process, organisations, maintenance, and goal-setting and analysis capabilities. Within the PBIS context, we extended this definition by (a) focusing on schools, districts, and states as the basic organisational units of change; and (b) emphasising factors that influence academic and behaviour practice implementation (cultural responsiveness, high fidelity and sustainable use, formative data-based decision-making, locally coordinated and high-quality professional development, and institutional and authorised supports). We suggested three important sets of conceptual principles to guide development of implementation competence and capacity: phases of learning, implementation drivers and phases, and multi-tiered support systems.

Given this description of CD, we highlighted the main drivers to this process, for example, leadership teaming, integrated policy authority, recurring funding, visibility and dissemination, targeted personnel hiring practices, professional development, decision-based evaluation, and high-quality implementation examples. To illustrate further this process, we used the development and implementation of the federally funded PBIS Center as an example of how capacity development drives the technical assistance efforts provided to US schools, districts, and states.

Although the research and exemplar database is developing, the conceptual and implementation features of effective and efficient CD are becoming more clearly defined and operationalised. We are encouraged by the possibility that all children and youth will have increased access to and benefit from evidence-based interventions and practices because local implementation capacity is high quality, durable, and adaptable.

Acknowledgements

The development of this paper was supported in part by a grant from the Office of Special Education Programs, U.S. Department of Education (H029D40055). Opinions expressed herein are those of the authors and do not reflect necessarily the position of the U.S. Department of Education or the University of Connecticut, and such endorsements should not be inferred.

References

- Algozzine, B., Horner, R. H., Sugai, G., Barrett, S., Dickey, C. R., Eber, L., . . . Tobin, T. (2010). *Evaluation blueprint for school-wide positive behavior support*. Retrieved from <http://www.pbis.org>
- Benbenishty, R., & Astor, R. A. (2005). *School violence in context: Culture, neighborhood, family, school, and gender*. New York, NY: Oxford University Press. doi:10.1093/acprof:oso/9780195157802.001.0001
- Biglan, A. (1995). Translating what we know about the context of antisocial behavior into a lower prevalence of such behavior. *Journal of Applied Behavior Analysis*, 28, 479–492. doi:10.1901/jaba.1995.28-479
- Biglan, A. (2015). *The nurture effect: How the science of human behavior can improve our lives and our world*. Oakland, CA: New Harbinger Publications.
- Blase, K., & Fixsen, D. (2013). *Core intervention components: Identifying and operationalizing what makes programs work*. Washington, DC: Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, U.S. Department of Health and Human Services.
- Blase, K. A., Fixsen, D. L., Sims, B. J., & Ward, C. S. (2015). *Implementation science: Changing hearts, minds, behavior, and systems to improve educational outcomes*. Paper presented at the Wing Institute's Ninth Annual Summit on Evidence-Based Education, Berkeley, CA. Retrieved from <http://nirn.fpg.unc.edu/resources/implementation-science-changing-hearts-minds-behaviour-and-systems-to-improve>

- Bradshaw, C. P., Debnam, K., Koth, C. W., & Leaf, P. (2009). Preliminary validation of the Implementation Phases Inventory for assessing fidelity of schoolwide positive behavior supports. *Journal of Positive Behavior Interventions*, *11*, 145–160. doi:10.1177/1098300708319126
- Bradshaw, C. P., Koth, C. W., Bevans, K. B., Jalongo, N., & Leaf, P. J. (2008). The impact of school-wide positive behavioral interventions and supports (PBIS) on the organizational health of elementary schools. *School Psychology Quarterly*, *23*, 462–473. doi:10.1037/a0012883
- Bradshaw, C. P., Koth, C. W., Thornton, L. A., & Leaf, P. J. (2009). Altering school climate through school-wide positive behavioral interventions and supports: Findings from a group-randomized effectiveness trial. *Prevention Science*, *10*, 100–115. doi:10.1007/s1121-008-0114-9
- Bradshaw, C. P., Mitchell, M. M., & Leaf, P. J. (2010). Examining the effects of schoolwide positive behavioral interventions and supports on student outcomes: Results from a randomized controlled effectiveness trial in elementary schools. *Journal of Positive Behavior Interventions*, *12*, 133–148. doi:10.1177/1098300709334798
- Bradshaw, C. P., Reinke, W. M., Brown, L. D., Bevans, K. B., & Leaf, P. J. (2008). Implementation of school-wide positive behavioral interventions and supports (PBIS) in elementary schools: Observations from a randomized trial. *Education and Treatment of Children*, *31*, 1–26. doi:10.1353/etc.0.0025
- Bradshaw, C. P., Waasdorp, T. E., & Leaf, P. J. (2012). Effects of school-wide positive behavioral interventions and supports on child behavior problems. *Pediatrics*, *130*, e1136–e1145. doi:10.1542/peds.2012-0243
- Carr, E. G., Dunlap, G., Horner, R. H., Koegel, R. L., Turnbull, A. P., Sailor, W., . . . Fox, L. (2002). Positive behavior support: Evolution of an applied science. *Journal of Positive Behavior Interventions*, *4*, 4–16. doi:10.1177/109830070200400102
- Childs, K. E., Kincaid, D., George, H. P., & Gage, N. A. (2016). The relationship between school-wide implementation of positive behavior intervention and supports and student discipline outcomes. *Journal of Positive Behavior Interventions*, *18*, 89–99. doi:10.1177/1098300715590398
- Colvin, G., Kame'enui, E. J., & Sugai, G. (1993). Reconceptualizing behavior management and school-wide discipline and general education. *Education and Treatment of Children*, *16*, 361–381.
- Colvin, G., & Sugai, G. (1988). Proactive strategies for managing social behavior problems: An instructional approach. *Education and Treatment of Children*, *11*, 341–348.
- Cooper, J. O., Heron, T. E., & Heward, W. L. (2007). *Applied behavior analysis* (2nd ed.). Upper Saddle River, NJ: Pearson.
- De Valenzuela, J. S., Copeland, S. R., Qi, C. H., & Park, M. (2006). Examining educational equity: Revisiting the disproportionate representation of minority students in special education. *Exceptional Children*, *72*, 425–441.
- Duda, M. A., Ingram-West, K., Tedesco, M., Putnam, D., Buenrostro, M., Chaparro, E., & Horner, R. (2013). *District Capacity Assessment (DCA) for Scaling Up of Evidence-based Practices*. University of North Carolina, Chapel Hill.
- Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, *41*, 327–350. doi:10.1007/s10464-008-9165-0
- Dwyer, K. P., Osher, D., & Warger, W. (1998). *Early warning, timely response: A guide to safe schools*. Washington, DC: U. S. Department of Education.
- Dymnicki, A., Wandersman, A., Osher, D., Grigorescu, V., & Huang, L. (2014, September). *Willing, able → ready: Basics and policy implications of readiness as a key component for implementation of evidence-based interventions* (ASPE Issue Brief). Washington, DC: Office of the Assistant Secretary for Planning and Evaluation, Office of Human Services Policy, U.S. Department of Health and Human Services.
- Embry, D. D. (2004). Community-based prevention using simple, low-cost, evidence-based kernels and behavior vaccines. *Journal of Community Psychology*, *32*, 575–591. doi:10.1002/jcop.20020
- Fisher, E. S., Shortell, S. M., & Savitz, L. A. (2016). Implementation science: A potential catalyst for delivery system reform. *Journal of the American Medical Association*, *315*, 339–340. doi:10.1001/jama.2015.17949

- Fixsen, D. L., Blase, K. A., Horner, R., & Sugai, G. (2010, May). An overview of the State Implementation and Scaling up of Evidence-Based Practices Center (SISEP). *Scaling-Up Brief*, 4, 1.
- Fixsen, D., Blase, K., Metz, A., & Van Dyke, M. (2013). Statewide implementation of evidence-based programs. *Exceptional Children*, 79, 213–230.
- Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: Louis de la Parte Florida Mental Health Institute, University of South Florida.
- Fenning, P., & Rose, J. (2007). Overrepresentation of African American students in exclusionary discipline: The role of school policy. *Urban Education*, 42, 536–559. doi:10.1177/0042085907305039
- Flay, B. R., Biglan, A., Boruch, R. F., Castro, F. G., Gottfredson, D., Kellam, S., . . . Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention Science*, 6, 151–175. doi:10.1007/s11121-005-5553-y
- Furlong, M., & Morrison, G. (2000). The school in school violence: Definitions and facts. *Journal of Emotional and Behavioral Disorders*, 8, 71–82. doi:10.1177/10634266000800203
- Furlong, M. J., Morrison, G. M., Cornell, D. G., & Skiba, R. (2004). Methodological and measurement issues in school violence research: Moving beyond the social problem era. *Journal of School Violence*, 3(2–3), 5–12. doi:10.1300/J202v03n02_02
- Gage, N. A., Larson, A., & Sugai, G., & Chafouleas, S. M. (2016). Student perceptions of school climate as predictors of office discipline referrals. *American Educational Research Journal*, 53, 492–515. doi:10.3102/0002831216637349
- Greflund, S., McIntosh, K., Mercer, S. H., & May, S. L. (2014). Examining disproportionality in school discipline for Aboriginal students in schools implementing PBIS. *Canadian Journal of School Psychology*, 29, 213–235. doi:10.1177/0829573514542214
- Gregory, A., & Weinstein, R. S. (2008). The discipline gap and African Americans: Defiance or cooperation in the high school classroom. *Journal of School Psychology*, 46, 455–475. doi:10.1016/j.jsp.2007.09.001
- Gresham, F. M. (1989). Assessment of treatment integrity in school consultation and prereferral intervention. *School Psychology Review*, 18, 37–50.
- Gresham, F. M. (2004). Current status and future directions of school-based behavioral interventions. *School Psychology Review*, 33, 326–343.
- Hagermoser Sanetti, L. M., & Kratochwill, T. R. (Eds.). (2014). *Treatment integrity: A foundation for evidence-based practice in applied psychology*. Washington, DC: American Psychological Association. doi:10.1037/14275-000
- Haring, N. G., Liberty, K. A., & White, O. R. (1980). Rules for data-based strategy decisions in instructional programs: Current research and instructional implications. In W. Sailor, B. Willcox, & L. Brown (Eds.), *Methods of instruction for severely handicapped students* (pp. 159–192). Baltimore, MD: Brookes.
- Horner, R. H., & Sugai, G. (2015). School-wide PBIS: An example of applied behavior analysis implemented at a scale of social importance. *Behavior Analysis in Practice*, 8, 80–85. doi:10.1007/s40617-015-0045-4
- Horner, R. H., Sugai, G., & Anderson, C. M. (2010). Examining the evidence base for school-wide positive behavior support. *Focus on Exceptional Children*, 42, 1–14.
- Horner, R. H., Sugai, G., Smolkowski, K., Eber, L., Nakasato, J., Todd, A. W., & Esperanza, J. (2009). A randomized, wait-list controlled effectiveness trial assessing school-wide positive behavior support in elementary schools. *Journal of Positive Behavior Interventions*, 11, 133–144. doi:10.1177/1098300709332067
- Jimerson, S. R., Nickerson, A. B., Mayer, M. J., & Furlong, M. J. (Eds.). (2012). *Handbook of school violence and school safety: International research and practice* (2nd ed.). New York, NY: Routledge.
- Kauffman, J. M., & Landrum, T. J. (2013). *Characteristics of emotional and behavioral disorders of children and youth* (10th ed.). New York, NY: Pearson.
- Lewis, T. J., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children*, 31, 1–24.
- Latham, G. I. (1992). Interacting with at-risk children: The positive approach. *Principal*, 72, 26–30.

- Mathews, S., McIntosh, K., Frank, J. L., & May, S. L. (2014). Critical features predicting sustained implementation of school-wide positive behavioral interventions and supports. *Journal of Positive Behavior Interventions*, 16, 168–178. doi:10.1177/1098300713484065
- Mayer, G. R. (1995). Preventing antisocial behavior in the schools. *Journal of Applied Behavior Analysis*, 28, 467–478. doi:10.1901/jaba.1995.28-467
- McIntosh, K., & Goodman, S. (2016). *Integrated multi-tiered systems of support: Blending RTI and PBIS*. New York, NY: The Guilford Press.
- McIntosh, K., Kim, J., Mercer, S. H., Strickland-Cohen, M. K., & Horner, R. H. (2015). Variables associated with enhanced sustainability of school-wide positive behavioral interventions and supports. *Assessment for Effective Intervention*, 40, 184–191. doi:10.1177/1534508414556503
- McIntosh, K., Massar, M. M., Algozzine, R. F., George, H. P., Horner, R. H., Lewis, T. J., & Swain-Bradway, J. (2016). Technical adequacy of the SWPBIS Tiered Fidelity Inventory. *Journal of Positive Behavior Interventions*. Advance online publication. doi:10.1177/1098300716637193
- McIntosh, K., Mercer, S. H., Hume, A. E., Frank, J. L., Turri, M. G., & Mathews, S. (2013). Factors related to sustained implementation of schoolwide positive behavior support. *Exceptional Children*, 79, 293–311.
- McIntosh, K., Mercer, S. H., Nese, R. N. T., & Ghemraoui, A. (in press). Critical mass of schools and community of practice predict implementation patterns of a school-based prevention model. *Prevention Science*.
- McIntosh, K., Mercer, S. H., Nese, R. N. T., Strickland-Cohen, M. K., & Hoselton, R. (in press). Predictors of sustained implementation of school-wide behavioural interventions and supports. *Journal of Positive Behavior Interventions*.
- McIntosh, K., Predy, L. K., Upreti, G., Hume, A. E., Turri, M. G., & Mathews, S. (2014). Perceptions of contextual features related to implementation and sustainability of school-wide positive behavior support. *Journal of Positive Behavior Interventions*, 16, 31–43. doi:10.1177/1098300712470723
- McIntosh, K., & Turri, M. G. (2014). Positive behaviour support, sustainability and continuous regeneration. In C. R. Reynolds, K. J. Vannest, & E. Fletcher-Janzen (Eds.), *Encyclopedia of special education: A reference for the education of children, adolescents, and adults with disabilities and other exceptional individuals* (4th ed., Vol. 3, pp. 2061–2064). Hoboken, NJ: Wiley. doi:10.1002/9781118660584.e1903
- Meng, P. M., McIntosh, K., Claassen, J., & Hoselton, R. (2016). *Does implementation of SWPBIS enhance sustainability of specific programs, such as Playworks?* Retrieved from <http://www.pbis.org/evaluation/evaluation-briefs/sustainability-of-programs>
- Metz, A., & Bartley, L. (2012). Active implementation frameworks for program success: How to use implementation science to improve outcomes for children. *Zero to Three*, 32(4), 11–18.
- Myers, D. M., Simonsen, B., & Sugai, G. (2011). Increasing teachers' use of praise with a response-to-intervention approach. *Education and Treatment of Children*, 34, 35–59. doi:10.1353/etc.2011.0004
- Nelson, J. R., Hurley, K. D., Synhorst, L., Epstein, M. H., Stage, S., & Buckley, J. (2009). The child outcomes of a behavior model. *Exceptional Children*, 76, 7–30.
- Nese, R. N. T., McIntosh, K., Nese, J. F. T., Ghemraoui, A., Bloom, J., Johnson, N. W., . . . Hoselton, R. (in press). Predicting abandonment of school-wide behavior support interventions. Manuscript accepted for publication.
- OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. (2015a). *Positive behavioral interventions and supports implementation blueprint: Part 1 – Foundations and supporting information*. Retrieved from <http://www.pbis.org>
- OSEP Technical Assistance Center on Positive Behavioral Interventions and Supports. (2015b). *Positive behavioral interventions and supports implementation blueprint: Part 2 – Self-assessment and action planning*. Retrieved from <http://www.pbis.org>
- Pinkelman, S. E., McIntosh, K., Rasplica, C. K., Berg, T., & Strickland-Cohen, M. K. (2015). Perceived enablers and barriers related to sustainability of school-wide positive behavioral interventions and supports. *Behavioral Disorders*, 40, 171–183. doi:10.17988/0198-7429-40.3.171
- Sadler, C. (2000). Effective behavior support implementation at the district level: Tigard-Tualatin School District. *Journal of Positive Behavior Interventions*, 2, 241–243. doi:10.1177/109830070000200411

- Sadler, C., & Sugai, G. (2009). Effective behavior and instructional support: A district model for early identification and prevention of reading and behavior problems. *Journal of Positive Behavior Interventions, 11*, 35–46. doi:10.1177/1098300708322444
- Safran, S. P., & Oswald, K. (2003). Positive behavior supports: Can schools reshape disciplinary practices. *Exceptional Children, 69*, 361–373. doi:10.1177/001440290306900307
- Simonsen, B., Eber, L., Black, A. C., Sugai, G., Lewandowski, H., Sims, B., & Myers, D. (2012). Illinois statewide positive behavioral interventions and supports: Evolution and impact on student outcomes across years. *Journal of Positive Behavior Interventions, 14*, 5–16. doi:10.1177/1098300711412601
- Simonsen, B., MacSuga-Gage, A. S., Briere, D. E., III, Freeman, J., Myers, D., Scott, T. M., & Sugai, G. (2014). Multitiered support framework for teachers' classroom-management practices: Overview and case study of building the triangle for teachers. *Journal of Positive Behavior Interventions, 16*, 179–190. doi:10.1177/1098300713484062
- Scaccia, J. P., Cook, B. S., Lamont, A., Wandersman, A., Castellow, J., Katz, J., & Beidas, R. S. (2015). A practical implementation science heuristic for organizational readiness: $R = MC^2$. *Journal of Community Psychology, 43*, 484–501. doi:10.1002/jcop.21698
- Shannon, P., Daly, D. C., Malatchi, A., Kvarfordt, C., & Yoder, T. (2001). Capacity for statewide implementation of positive behavior supports: A needs assessment strategy. *Journal of Positive Behavior Interventions, 3*, 95–100. doi:10.1177/109830070100300206
- Skiba, R. J., Poloni-Staudinger, L., Gallini, S., Simmons, A. B., & Feggins-Azziz, R. (2006). Disparate access: The disproportionality of African American students with disabilities across educational environments. *Exceptional Children, 72*, 411–424.
- Skinner, B. F. (1953). *Science and human behavior*. New York, NY: Macmillan.
- Sørli, M.-A., & Ogden, T. (2015). School-wide positive behavior support – Norway: Impacts on problem behavior and classroom climate. *International Journal of School & Educational Psychology, 3*, 202–217. doi:10.1080/21683603.2015.1060912
- Spaulding, S. A., Horner, R. H., May, S. L., & Vincent, C. G. (2008). *Implementation of school-wide PBIS across the United States*. Retrieved from <http://www.pbis.org/blueprint/evaluation-briefs/implementation-across-us>
- Strickland-Cohen, M. K., McIntosh, K., & Horner, R. H. (2014). Effective practices in the face of principal turnover. *Teaching Exceptional Children, 46*(3), 19–25. doi:10.1177/004005991404600302
- Sugai, G. (in press). Positive behavioral interventions and supports: Application of a behavior analytic theory of action. *Journal of Evidence-Based Practices for Schools*.
- Sugai, G., & Horner, R. H. (1999). Discipline and behavioral support: Preferred processes and practices. *Effective School Practices, 17*, 10–22.
- Sugai, G., & Horner, R. H. (2009a). Responsiveness-to-intervention and school-wide positive behavior supports: Integration of multi-tiered system approaches. *Exceptionality, 17*, 223–237. doi:10.1080/09362830903235375
- Sugai, G., & Horner, R. H. (2009b). Defining and describing schoolwide positive behavior support. In W. Sailor, G. Dunlap, G. Sugai, & R. Horner (Eds.), *Handbook of positive behavior support* (pp. 307–326). New York, NY: Springer. doi:10.1007/978-0-387-09632-2_13
- Sugai, G., Horner, R. H., Dunlap, G., Hieneman, M., Lewis, T. J., Nelson, C. M., . . . Ruel, M. (2000). Applying positive behavior support and functional behavioral assessment in schools. *Journal of Positive Behavior Interventions, 2*, 131–143. doi:10.1177/109830070000200302
- Sugai, G., O'Keeffe, B. V., & Fallon, L. M. (2012). A contextual consideration of culture and school-wide positive behavior support. *Journal of Positive Behavior Interventions, 14*, 197–208. doi:10.1177/1098300711426334
- Sugai, G. M., & Tindal, G. A. (1993). *Effective school consultation: An interactive approach*. Pacific Grove, CA: Brooks/Cole.
- Sugai, G., Watanabe, Y., & Shimamune, S. (2014). Creating a positive school climate. *The Annual Report of Educational Psychology in Japan, 53*, 184–187. doi:10.5926/arepj.53.184
- Turri, M. G., Mercer, S. H., McIntosh, K., Nese, R. N. T., Strickland-Cohen, M. K., & Hoselton, R. (in press). Examining barriers to sustainability of schoolwide prevention practices. *Assessment for Effective Intervention*.

- United Nations Development Programme. (2009). *Supporting capacity development: The UNDP approach*. New York, NY: Author.
- Vargas, J. S. (1977). *Behavioral psychology for teachers*. New York, NY: Joanna Cotler Books.
- Vargas, J. S. (2009). *Behavior analysis for effective teaching*. New York, NY: Routledge.
- Walker, H. M., Horner, R. H., Sugai, G., Bullis, M., Sprague, J. R., Bricker, D., & Kaufman, M. J. (1996). Integrated approaches to preventing antisocial behavior patterns among school-age children and youth. *Journal of Emotional and Behavioral Disorders*, 4, 193–209. doi:[10.1177/106342669600400401](https://doi.org/10.1177/106342669600400401)
- Walker, H. M., Ramsey, E., & Gresham, F. M. (2004). *Antisocial behavior in school: Evidence-based practices* (2nd ed.). Belmont, CA: Wadsworth/Thomson Learning.
- Wandersman, A., Alia, K., Cook, B. S., Hsu, L. L., & Ramaswamy, R. (2016). Evidence-based interventions are necessary but not sufficient for achieving outcomes in each setting in a complex world: Empowerment evaluation, getting to outcomes, and demonstrating accountability. *American Journal of Evaluation*. Advance online publication. doi:[10.1177/1098214016660613](https://doi.org/10.1177/1098214016660613)
- Wandersman, A., Chien, V. H., & Katz, J. (2012). Toward an evidence-based system for innovation support for implementing innovations with quality: Tools, training, technical assistance, and quality assurance/quality improvement. *American Journal of Community Psychology*, 50, 445–459. doi:[10.1007/s10464-012-9509-7](https://doi.org/10.1007/s10464-012-9509-7)
- Wandersman, A., Duffy, J., Flaspohler, P., Noonan, R., Lubell, K., Stillman, L., . . . Saul, J. (2008). Bridging the gap between prevention research and practice: The interactive systems framework for dissemination and implementation. *American Journal of Community Psychology*, 41, 171–181. doi:[10.1007/s10464-008-9174-z](https://doi.org/10.1007/s10464-008-9174-z)
- White, O. R., & Haring, N. G. (1980). *Exceptional teaching* (2nd ed.). Columbus, OH: Merrill.
- Wolery, M. R., Bailey, D. B., Jr., & Sugai, G. M. (1988). *Effective teaching: Principles and procedures of applied behavior analysis with exceptional students*. Boston, MA: Allyn & Bacon.